

The deposits of this substance were attributed by the informants to a species of bandicoot (ninu). This would point at a link between the bandicoot's excreta and the manufacturing of spinifex gum as first performed by the Bandicoot Man.

At an increase site for the Bandicoot in the Great Victoria Desert (here too the Ancestral Hero was named Wati Bira or Wati Mu:mba), a few hundred miles south of Warburton, a row of stone cairns led to a small cave in which deposits of gurun gantiri were found. Gurun gantiri has been collected at many locations, one of the more accessible being Gabi Windalda (Winduldar Rockhole) on the main road from Warburton to Laverton, about 50 miles south-west of the Mission.

The above notes on the extraction of gum differ from the account given by A. G. Mathews (*W. Aust. Nat.*, 9, 1964: 96) Professor J. B. Cleland's footnote to Mathews' article appears to be more in line with the method of extraction observed by me. The discrepancy between my account and that of Mathews may be explained by the fact that traditional life is now fast disappearing, while Mathews was in a position to observe the Ngada-dara in their nomadic state. Furthermore, there is probably a difference between the methods employed by mixed parties utilising any spinifex, as observed by Mathews and the one I recorded, of a male party going to a favourite totemic site.

NOTES ON BREEDING THE RED-WINGED WREN (*MALURUS ELEGANS*) IN CAPTIVITY

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1962

On June 4, 1962 a male Red-winged Wren in eclipse plumage was placed in a small planted aviary containing two White-breasted Robins and pair of Scarlet-chested Parrots. The bird appeared a little 'fluffy' the first day but was observed eating. Appearance improved after a few days but he scratched himself quite a lot particularly about the eyes. On June 10 he was caught and placed in a small cage and treated with penicillin eye ointment and terramycin was placed in the drinking water. These measures were purely precautionary. After one week of this treatment he improved and was liberated in a large heavily planted aviary 36 x 30 x 10 ft. Two immature Splendid Wren (*M. splendens*) males attacked the Red-winged Wren so the Splendids were removed to another aviary.

June 26: A female Splendid Wren was heard emitting a buzzing call "Z-z-z Z-z-z- Z-z-z." She then flew to the perch occupied by the Red-winged Wren male (hereafter called Male A) and snuggled up close to him.

June 28: Another male Red-winged Wren (Male B) plus a female of the same species were obtained and placed in the small aviary with the White-breasted Robins and Scarlet-chested Parrots. The wrens sang immediately and appeared indignant at the robins.

July 22: A dark spot appeared on the breast of male A as he commenced his moult into nuptial plumage. He was transferred to another aviary in order to separate him from the Splendid female.

August 3: Male B commenced to moult with a dark feather appearing on the breast. This bird, together with his female companion, were transferred to the large aviary and by September 20 had attained full nuptial plumage.

October 14: Male A was examined and photographed. He had definitely ceased moulting but was only partially coloured up.

The breast was very patchily coloured and a fine layer of grey overlaid the blue back. The head was very patchy and the chestnut shoulders very dull. I would say it was about 50 per cent coloured.

The Red-winged Wrens have much sharper and louder "Straits" than Splendid Wrens. The female was quite noisy when feeding.

December 11: The female was observed carrying grass into a patch of lucerne at the foot of a pencil pine in which a pair of Red-eared Firetails were rearing nestlings. No Wren's nest was found.

1963

In the first week of January Male B commenced the moult into eclipse plumage.

January 28: Male A was removed from his aviary and was returned after one hour whereupon Male B in the adjoining aviary became very excited and attacked his female unmercifully (I have observed similar behaviour in Splendid Wrens).

May 31: A dark spot appeared on the breast of Male B.

In the middle of May the *female* Red-winged Wren picked up an insect, called loudly and excitedly, then flew swiftly around the aviary and finally landed on a perch beside Male B. She crouched, fluttered her wings and retained the insect in her bill. The male stood and stared like a graven image (unusual for a wren). After a short while she swallowed the insect. Was the female taking the initiative in making the first advance? (Cf. my notes on the Scarlet Robin in which the female appeared to make the first advance by gently brushing her wings over the head of the male, W.A. *Naturalist*, 10, 1966: 66).

June 4: Just at dusk male B was heard squeaking and seen searching for insects on low twigs. When he caught an insect the female flew to his perch, crouched, fluttered her wings and accepted (and ate) the insect piece by piece.

June 10: Male A has commenced feeding a Splendid Wren female. It is very interesting to note that this male did not moult into eclipse but retained his 50-50 plumage throughout the winter.

August 6: Male B was now in full nuptial plumage and his female was constructing a nest in a low fishbone fern next to the pool. She defended the nest site by crouching low on the ground with tail dragging then approached too-close finches who invariably fled.

August 7: Female still building. She approached the nest site along the same path and uttered "strits" every time she hopped through the fern with her bill filled with nesting material.

August 8 and 9: The female deserted the original nesting site but appeared to be building a few feet away.

September 18: When my wife went into the aviary the female followed her closely around "screaming and screaming."

September 19: The female was observed to disappear into a fern in the north-east corner of the aviary.

September 20: Both parents were running a shuttle service, carrying food, between the termite tray and the fern in the north-east corner. The female fed the nestlings more frequently than the male. The female had not been observed building in this position because very wet weather prohibited comfortable watching. My wife recalls going into the aviary a few days previously and was astonished to see several birds of various species flash from the vicinity of the nest. Perhaps they were all being curious or celebrating the hatching of the young Redwings. The writer has

observed this 'hatching behaviour' before. Apparently the chatter of the parents attracts an assemblage of various species.

September 21: Nestlings could be heard being fed. The female did most of the feeding and was everlastingly squeaking as she searched for food. The male sometimes carried food to the young and was always near on guard and warned of danger.

September 29: At 5 p.m. three newly emerged youngsters were observed in the centre of the aviary in a secluded position. They perched together a few inches off the ground. Inquisitive Yellow-tailed Thornbills had to be kept at bay by the Red-winged parents.

September 30: Second day out of the nest saw the three youngsters in the same position. It was interesting to observe the instantaneous dive for cover by the young birds when the alarm signal was sounded firstly by a male Splendid Wren in an adjoining aviary. They were soon back on the original perch.

When my wife or I entered the aviary the parent male flew to a perch twelve inches away from his youngsters and gave sharp calls. Then with his feet still on the perch his wings moved rapidly with a loud whirring sound. The male then flew low to the nesting site area and the young followed. As soon as we left the aviary the father and the young birds all returned to the same secluded perch area.

October 4: One young bird was observed to move independently from the perching site.

October 9: Male B was observed displaying. The light blue on his back was a large and beautiful circle of blue.

October 11: Young moved around and followed their mother to be fed. The father did not feed the young very often but was still in evidence.

November 2: The young still chased the parents to be fed. The female had built another nest in a low fern.

A Yellow-tailed Thornbill 'danced' in front of a young Scarlet Robin and the male B chased the Thornbill away.

November 20: For the last few days the female Red-winged wren had been continuously squeaking as she moved around. A second nest of young could be heard being fed. Each time a first brood youngster neared the nest the female would approach it with food. Then she fluttered her wings and entered the nest, giving the food to the second brood nestlings. One of the earlier brood was observed to enter the nest with food.

The three second brood young died in the nest. The three first brood young survived and were two females and one male. The latter commenced the moult into nuptial plumage about July 6, 1964.

All the nests were deep cup-shaped, cosy and well constructed of hemp, fine grasses and lined with feathers and cotton wool. Without exception the nests were open at top and had NO roof or canopy. They were well hidden, deep in fern and close to the ground and the birds perhaps felt no need for a roof covering.

The male A had full nuptial colour in the summer of 1963-4. He retained this nuptial plumage until May 2, 1964. On this date, to my amazement, he commenced a moult into partial eclipse (50-50) which was probably caused by a change of aviaries just prior to this date. About June 6, 1964 his moult commenced, and he rapidly changed back into nuptial plumage which was completed by June 14.*

* Mr. and Mrs. Pepper were awarded a bronze medal by the South Australian Avicultural Society for the first breeding in captivity of this species.—Ed.